CONSTELLATIONS AT DIFFERENT TIMES OF THE YEAR

CONSTELLATION

A constellation is a group of stars that are near each other from our point of view on Earth.

STARS

Are giant, bright spheres of plasma – a superheated gas threaded with a magnetic field. Stars are born within the clouds of dust and scattered throughout mist galaxies. An example is called Orion Nebula.

Our SUN is the closest start to Earth.

CHARACTERISTICS OF STAR

1. Brightness – the most notable characteristics of a star which may depend on two variable – distance and absolute brightness.

a. Apparent brightness – depends on how far away a star is from the Earth or as seen from Earth.

b. Absolute brightness or Actual brightness – is the brightness if all stars were the same standard distance from Earth.

CHARACTERISTICS OF STAR

2. Color – it depends on the surface temperature and varies with size and age.

CHARACTERISTICS OF STAR

3. Size – it is based in terms of the radius if the sun also called SOLAR RADIUS. As the mass of the star increases, its size will also increase, affecting the color, star’s luminosity, and rate fusion of hydrogen to form helium.

CHARACTERISTICS OF STAR

4. Composition – stars are composed of:

Hydrogen (60-80%)

Helium (16-36%)

Traces of Oxygen, Neon, Carbon and Nitrogen (4%)

Do you know that a person can see approximately 3,000 stars on the average? These stars differ in brightness, size, and color. The colors of stars are blue, oranges, red, white, and yellow. Each color indicates its approximate surface temperature as shown in the table below.

Colors of Star and the Approximate Surface Temperatures

Color	Surface Temperature	Example
Red	3000 K	Betelgeuse
Orange	4000 K	Aldebaran
Yellow	6000 K	Sun
White	10,000 K	Vega
Blue	25,000 K	Spica

- The word constellation from the Latin word “con” means Group and “stella” means stars.

- The International Astronomical Union (IAU) defined constellations as boundaries in the sky to aid determining locations of newly discovered astronomical objects.

- The more recognizable patterns of stars are known as asterism.

- **Big Dipper** is an example of an asterism that is in the constellation Ursa Major.

- As of today, we have 88 constellations that astronomers studied and most of these stars are based on Greek groups and there are also 48 accredited constellations recorded in Ptolemy's almagest.

- Stars are distant celestial bodies from Earth and Sun is the nearest star. Stars and constellations are visible depending on the location of an observer and the season in that place. Some stars and constellations are only visible at a specific month.

Ursa Major is an easily recognizable constellation in the night sky that looks like a large spoon. It is composed of seven bright stars.

Ursa Minor, composed also of seven stars that resembled a small spoon.

TRES MARIAS / ORION'S BELT

Early Filipinos visualized the same group of stars as Balatik, a trap used in hunting wild pigs.
Christian Filipinos named the three stars (Orion's Belt) Tatlong Maria or Tres Marias.

WHY DO STARS APPEAR TO MOVE TO MOVE IN THE SKY?

This is because Earth rotates on its axis, thus the stars appear to move across the night sky from east to west, and the sun seems to rise in the east and set in the west. The stars that are close to celestial poles, appears to move a little in the night sky.

- **Polaris** is the North star because it is located close to the north celestial pole
- Stars that are around a celestial pole are called circumpolar stars forming recognizable patterns known as **circumpolar constellations.**

TERMS TO REMEMBER!

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- Stars that are around a celestial pole are called circumpolar stars forming recognizable patterns known as **circumpolar constellations.**
- The northern circumpolar constellations are Ursa Major, Ursa Minor, Cassiopeia, and Draco.
- The southern circumpolar constellations are Carina, Centaurus, and Crux.
- All stars observed from the equator are not circumpolar for it appears to rise in the east and set in the west.

WHY DO WE SEE DIFFERENT CONSTELLATIONS AT DIFFERENT TIMES OF THE YEAR?

This is because the Earth orbits around the sun from west to east making the star seems to rise in the east and set in the west. The rotation of the Earth on its axis causes the observed movement of the stars in the night sky while the revolution allows the observer to see a certain part of the sky at different months of the year.

THE CONSTELLATIONS THAT ARE VISIBLE FROM LATE MARCH TO LATE JUNE (NORTHERN SPRING/SOUTHERN AUTUMN) ARE LISTED AS FOLLOWS:

Antlia	*Centaurus*	*Leo*	*Sextans*
Bootes	*Corvus*	*Lynx*	*Ursa Major*
Cancer	*Crux*	*Musca*	*Ursa Minor*
Canes Venatici	*Hydra*	*Pyxis*	*Virgo*

Late June to late September (Northern Summer/Southern Winter):

Apus	*Circinus*	*Pavo*	*Scutum*
Aquila	*Draco*	*Sagitta*	*Serpens*
Ara	*Equuleus*	*Sagittarius*	*Telescopium*
Capricornus	*Hercules*	*Scorpius*	*Delphinus*

Late September to late December (Northern Autumn/Southern Spring):

Andromeda	*Cepheus*	*Octans*	*Sculptor*
Aquarius	*Cetus*	*Pegasus*	*Triangulum*
Aries	*Grus*	*Perseus*	*Tucana*
Cassiopeia	*Lacerta*	*Phoenix*	

Late December to late March (Northern Winter/Southern Summer):

Auriga	*Eridanus*	*Hydrus*	*Reticulum*
Caelum	*Fornax*	*Lepus*	*Taurus*
Camelopardalis	*Gemini*	*Orion*	*Vela*
Canis Major	*Horologium*	*Pictor*	*Volans*

USES OF CONSTELLATION

Throughout history, constellations have been used in:

1. Navigation- Before compasses and maps, sailors and explorers had to use the stars to find their way across the seas.
2. Agriculture- The first practical use constellation had was serving as a seasonal clock.
3. some cultures for divination and religious purposes.

Even in modern days they still have uses like functioning as “borders” to map out the sky.